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THE DENTAL PRACTITIONER

A monthly journal for the Practitioner and his Staff

VOL. II, NO. 7 MARCH, 1952

Incorporating the Official Supplement of
The Dental Laboratories Section of the Surgical Instrument Manufacturers' Association

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THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

(Incorporating the Proceedings of the British Society of Periodontology and the Official Supplement of the S.I.M.A.—Dental Laboratories Section)

Editor: JOHN E. SEEAR, L.D.S. R.C.S.

Associate Editors :

H. MANDIWALL, M.B., B.S., L.D.S.

N. LIVINGSTONE WARD, L.D.S., D.D.S.

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Illustrations should be clearly numbered and legends should be written on a separate sheet of paper and not put on the backs of the originals. Each figure should be referred to in the text. Prints are preferred to X-ray negatives and should be on glossy paper. Lettering which is to appear on illustrations is best shown on an overlay or rough sketch. It should not be put on the original.

Tables should be typed on separate pages and each should have a caption which will explain the data without reference to the text.

References to dental literature should be recorded in the text, with the name of the author and the year of publication in parentheses. In the bibliography they should be arranged in alphabetical order in the following form, the abbreviations of periodicals being those adopted in the *World List of Scientific Periodicals*, e.g. :—

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THE
DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

Vol. II, No. 7 March, 1952

ITORIAL

"QUO VADIS?"

THE XIth International Dental Congress is being held in London from July 19 to July 26 this year. Your reactions to this announcement will depend upon your attitude to your own work. It will in fact depend upon where you are going in relation to your own work.

A healing science must be international in character and can only move forward by dint of an inward force which springs from an ideal. The ideal is the abolition of disease. The dental profession the whole world over is striving for this very ideal, each country in its own way and with its own methods. Progress will depend on correlation of research and a constant survey of the situation. A review of world dentistry is to take place in London at the International Congress. It will range over the whole aspect of dentistry and each subject will be treated by an expert. The household names of modern dentistry will present the newer concepts of their respective fields—Tylman, Salzmann, Kesel, Sicher, Orban, Grossman, just to mention a few of the names of world-famous dentists who will be attending.

In these times of strife international friendship is of supreme importance, and this gathering will be an opportunity of returning hospitality to our overseas colleagues and to make new acquaintances. International Dental Congresses are few and far between in this country and, coupled with the limited and difficult facts of travelling abroad, here is an ideal opportunity of getting to know the other man's point of view and broadening our own minds.

The last ten years have seen huge strides forward in the science and art of dentistry, and the average man is quite unable to keep up with the modern pace of research. This Congress will help everyone who attends to find out just what is happening in the dental world. Whether your tastes lie in some specialized department of dentistry or in its politico-economic set-up, there will be something there for you. It will review the past and show a glimpse of the future, so if you are interested in dentistry you should not miss this meeting.

Further particulars of the Congress will be found on page 212.

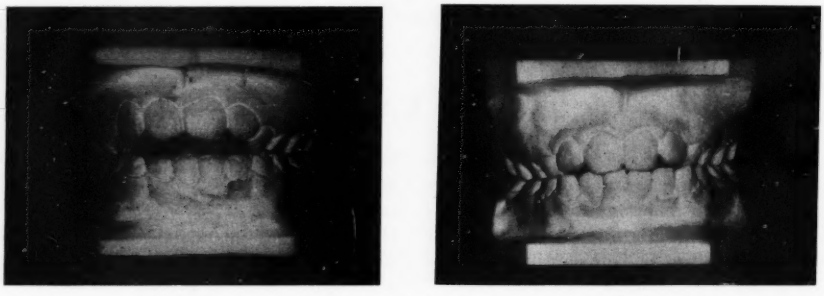
> "The only real failure is to give up trying."—OLD PROVERB.

THE AGE FACTOR IN ORTHODONTIC TREATMENT

By **W. J. TULLEY**, B.D.S., F.D.S. R.C.S.

Dental Department for Children, Guy's Hospital

WHAT is the best age at which to commence orthodontic treatment ? This question is often being asked by the general practitioner and is still the subject of controversy among orthodontists. In this short paper I wish to clarify some of the points which are the subject of this controversy and attempt to give an unbiased analysis of the facts. Details of appliances and methods of treatment are purposely excluded and the subject-matter dealt with in rather a different way than in previous papers on this aspect of orthodontics.



A B

Fig. 1.—Case of postnormal occlusion and anterior open bite. Marked thumb-sucking. A, Aged 8 years 7 months. C|C have been stoned to allow the postnormal occlusion to be treated. B, Aged 9 years 4 months. Treated by expansion plate for 3 months. Thumb-sucking discouraged. Followed by monobloc 6 months. Interim models.

Active orthodontic treatment is often commenced too early and necessitates the child remaining under treatment for a very long period. Most cases cannot be considered complete until a proper premolar occlusion has been established and the behaviour of the orofacial musculature has "matured".

General dental examination of the child at an early age, preferably about three years, is well worth while, or before this if the child is subject to caries. Six-monthly visits will then allow a watch to be kept on the developing occlusion.

Active treatment in the complete deciduous phase is not, generally speaking, worth while, but there are certain exceptions to this rule:—

1. Spot grinding of high cusps which have not become worn by natural attrition.

2. Attempts may be made to overcome such habits as thumb-, finger-, or lip-sucking if persistent after the age of five years, as these will interfere with the normal eruption of the permanent incisors. Attempts to break a habit in the early phase of the deciduous dentition are not necessary, and may be disturbing to the child. This point of view is not held by some schools of thought.

3. The third possible treatment in deciduous dentition is the use of extra-oral anchorage in true prenormal cases. This is of doubtful value unless the bite is gagged.

First, with regard to spot grinding. This has a strictly limited application in the complete deciduous dentition, but a high cusp which has not been subjected to normal attrition may produce a degree of malocclusion. Hindrance to normal mesial drift may occur and *Fig.* 1 shows a condition in the mixed dentition where

the pointed upper deciduous canines have been stoned to allow treatment of the postnormality.

One of the best appliances to use in the case of thumb- or finger-suckers is a split plate such as might be used for expansion of the arch.

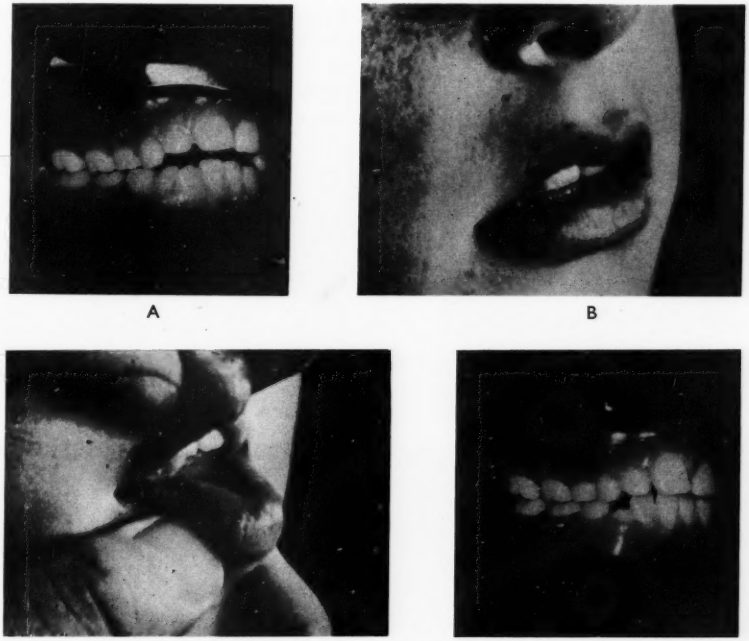


Fig. 2.—Case of anterior open bite with finger-sucking and atypical swallow.

A, 8 years. Before treatment. B, Position of lips at rest. C, Tongue thrust during swallowing. D, 8½ years. After finger-sucking discontinued. Over jet and retroclination of $\overline{21|12}$ persist due to tongue thrust and lower lip contractions. E, 10 years. Tooth movement completed by monobloc with lower goalposts as movable inclined plane. Case has worn monobloc for nearly two years, but atypical swallow remains. Occlusion and lip seal now normal.

The presence of such a plate tends to spoil the pleasurable sensation. It is often preferred to the monobloc which can be discarded so easily, either consciously or unconsciously in the night (*Figs.* 1, 2).

The monobloc has its uses, as some children will take to it and suck on the bloc instead of the finger. It is most useful in cases where the lower lip is sucked and where there is a tendency to postnormality. *Figs.* 3, 4 illustrate just such a case, and this behaviour of the lips would have persisted to deflect the permanent incisors during their eruption. A monobloc was fitted and worn most of the day and night. This appliance was made with a slightly forward bite, and the lower incisors were uprighted by use of an adjustable incline on the

monobloc. Active treatment extended over six months, and since then development has continued along normal lines.

Thirdly, the use of extra-oral anchorage by head and chin strap has been described by Chapman (1950) and others. It depends on the child being old enough to tolerate a plate to gag the bite on posterior teeth, thus eliminating the adverse incisor lock during treatment. Success with this depends on the child being phlegmatic and the parent able to co-operate in adjustment of the appliance. Such cases must still be followed up for a number of years, but anything that can be done at this early age to lag the forward development of the lower arch is worth while.

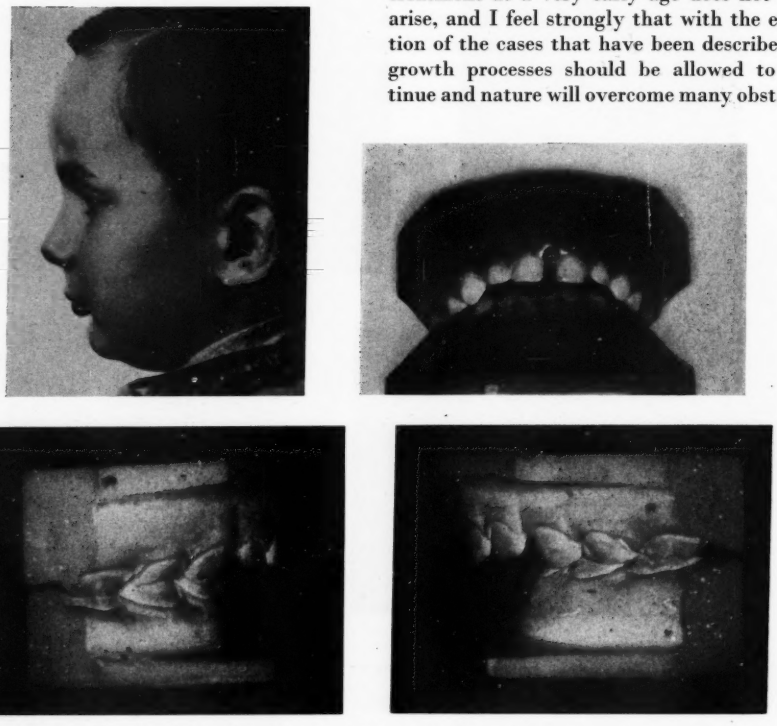


Fig. 3.—Case of postnormal occlusion in the deciduous dentition. Lower lip sucked continuously. Profile and models before treatment. Aged 4 years.

Children do not often present for orthodontic treatment in the complete deciduous dentition, as incipient malocclusion is not always apparent to the parent, except in gross cases. One often hears, "He had a lovely set of baby teeth", when one is looking at a marked degree of malocclusion in the mixed dentition. For this reason the question of whether to start treatment at a very early age does not often arise, and I feel strongly that with the exception of the cases that have been described the growth processes should be allowed to continue and nature will overcome many obstacles.

The commonest time for mothers to become worried about their children's teeth is during and after the eruption of the permanent incisors. These teeth appear to the parent to be so much larger than their predecessors and the growth processes, lagging behind the arrival of these teeth, account for an exaggerated condition for a short while. Obstacles may be there to deflect them from their true position, and this phase is one during which many simple orthodontic procedures are of value.

First, purely preventative measures such as removal of retained deciduous teeth, or a supernumerary likely to deflect the incisors; secondly the use of a spatula to move one or two teeth over the bite; and thirdly conservation of deciduous teeth, may be the only treatment required and prevent complications at a later date (*Fig.* 5). It is important that interstitial fillings in the deciduous teeth should be properly contoured to maintain the correct depth of the arches. Where deciduous molars or canines are lost early, space retainers may be used. It is not practicable, however, to fit them in every case and not always necessary. This depends on several factors which are beyond the scope of this paper and to some extent controversial.

Observations during this period enable a watch to be kept on the natural alinement during the "ugly duckling stage". So often the parents become anxious about the slight overcrowding which has already been mentioned, and which may disappear in due course. *Fig.* 6 shows such a case, which may resolve without treatment. Where gross crowding exists, it may be treated by serial extraction. This is a planned reduction of a deciduous dentition to allow natural alinement of the permanent incisors followed by reduction of the permanent dentition later. The timing of these extractions is most important, and is dealt with by various writers (Kjellgren, 1948).

There are serious pitfalls in such methods of treatment, especially if the crowding is associated with discrepancies in antero-posterior and vertical arch relationship. Extractions must not be undertaken without due consideration and must be viewed in the

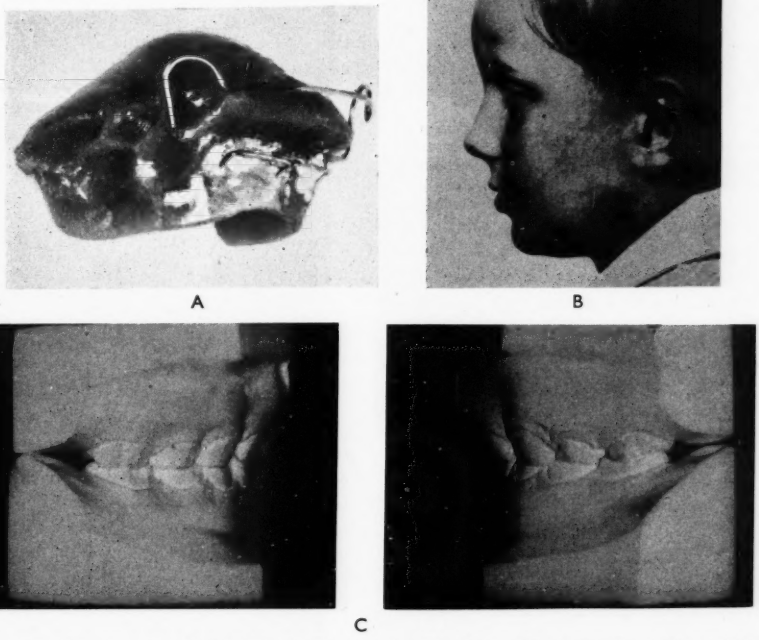


Fig. 4.—Same case as in *Fig.* 3. A, Treatment with this appliance for 6 months. Note stainless steel bars forming adjustable incline. B, Profile 6 months after cessation of active treatment. Aged 5 years. C, Models 18 months after active treatment. Aged 6 years.

light of their effect on the overbite and on the labial segments of the dental arches. The treatment cannot always be completed without

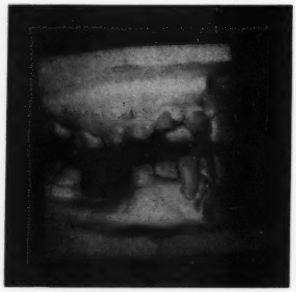


Fig. 5.—Model to illustrate two local causes of malocclusion that can so easily be prevented. (*a*) Retained deciduous incisors deflecting permanent teeth palatally; (*b*) Early loss of deciduous teeth.

appliances. As an example of the careful diagnosis required before this type of treatment is instituted, early extraction of lower deciduous teeth in a postnormal case because of crowding in the lower arch would be fatal.

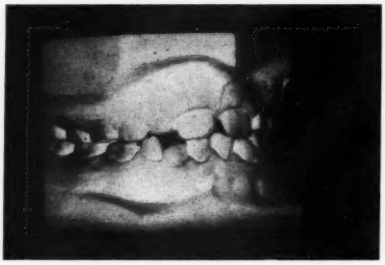


Fig. 6.—Incisor crowding with normal arch relationship. This may correct itself in time. Aged 7 years.

The crowns of the lower incisors would fall lingually, particularly where the orofacial musculature is abnormal, increasing the degree of overbite and exaggerating the postnormality.

Fig. 7 shows crowding of upper and lower dental arches with normal arch relationships which could be treated by extraction of all four deciduous canines followed later by extraction of upper first and lower second premolars.

From these obvious cases which require treatment between the age of 7 and 10 years we come to the group of Class II, Division 1, type, so common in this country. Such cases are associated with the abnormal behaviour of the orofacial musculature, and there are two main schools of thought as to the age at which one should commence treatment.

One school believes in treating the malocclusion and attempting the re-education of the muscle behaviour patterns in the mixed dentition. The method of treatment varies considerably and may consist of extraction of a first premolar (or second premolar towards the end of this age range), using removable apparatus to reduce the overbite and retract

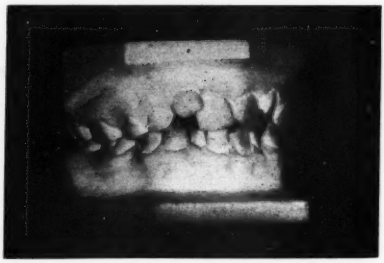
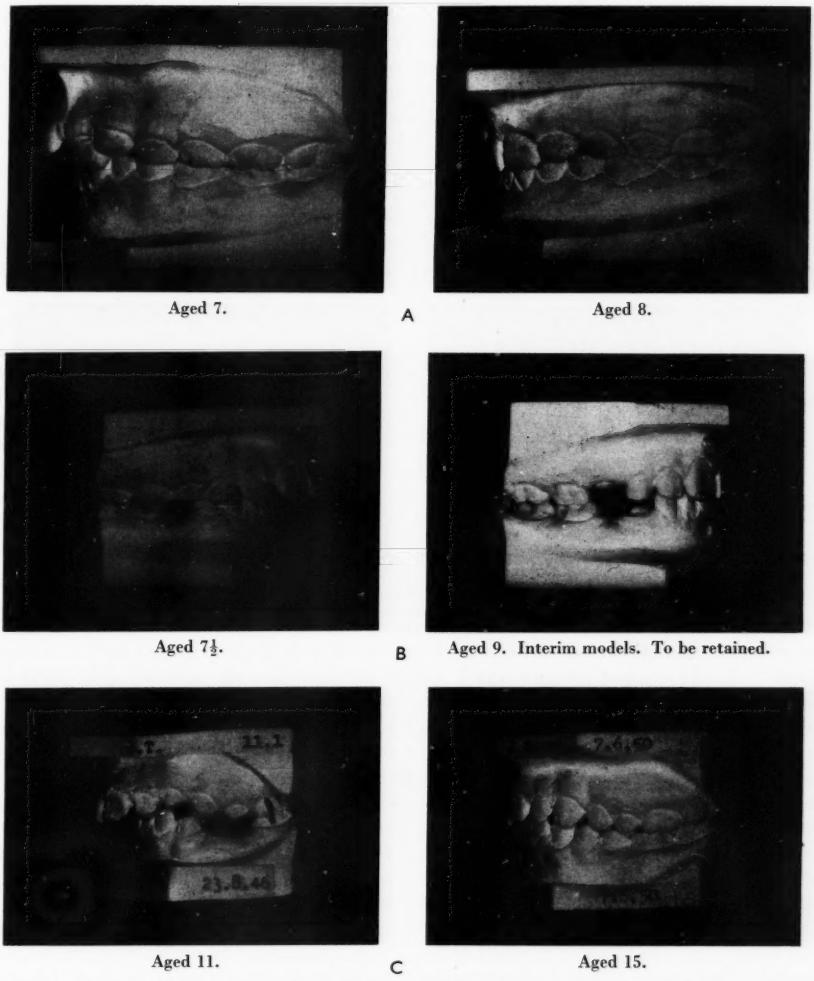


Fig. 7.—Gross incisor crowding. Normal arch relationship. Suitable case for serial extractions. Aged 8 years.

the incisors, or the entire treatment may be completed with a monobloc without extractions. Whichever method is used, attempts are made to influence the behaviour pattern of the orofacial musculature with the monobloc either during active treatment or afterwards (Gwynne-Evans and Ballard, 1948).

There are two main abnormalities associated with the orofacial musculature which have to be modified before the dental arches can be stabilized. One is that of the atypical swallow which is sometimes referred to as the infantile swallow (Rix, 1946, 1948), and the other the incompetent action of the lips (*Fig.* 2 B, C). It has not been shown conclusively that the monobloc is able to alter these abnormal patterns, nor has it been shown that lip exercises can change a marked abnormal behaviour of the lips. The passage of time is the real factor responsible for improvement and these re-educational adjuncts may hasten the process in some cases.

It has been pointed out that cases of this nature treated at an early age require long retention until a satisfactory premolar occlusion has been established. Whatever the monobloc may or may not be able to do, it is still a very valuable appliance for use as a long-term retainer without trauma to the paradontal tissues, and without hindering the normal drift of the teeth. Co-operation between the general practitioner and the orthodontist



Aged 7. A Aged 8.

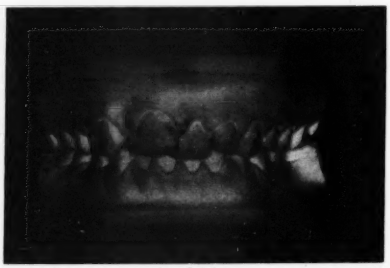
Aged 7½. B Aged 9. Interim models. To be retained.

Aged 11. C Aged 15.

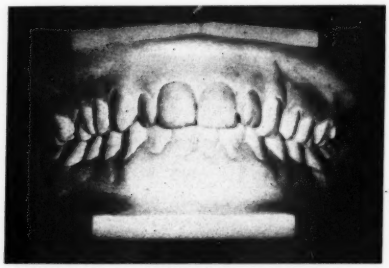
Fig. 8.—Cases treated by the monobloc with short active period of treatment. A. Case of unilateral Class II, Division I, treated by monobloc with addition of movable bar palatally to $\underline{|1}$. Active treatment 6 months. B. Case of Angle's Class II, Division I, with early loss in lower dental arch and $\underline{6|}$ in lingual occlusion. Treated by expansion of upper arch followed by monobloc. Active treatment 2 years. C. Case of Class II, Division I, with early loss in lower dental arch. Active treatment 2½ years. Retained for 18 months until premolar occlusion established.

in the follow-up period enables retention to be checked at routine visits for conservative treatment with a minimum of inconvenience to all concerned.

The other school of thought believes in deliberately waiting to treat this type of case until after the eruption of the second molar teeth. There are advantages to be obtained by waiting until this age. First, the child is far more co-operative and the muscle behaviour patterns more "mature". This may not be quite the right term, but the patient may be prepared to take some pains in establishing a closed-lip habit. Secondly, teeth at the posterior aspect of the dental arches can be extracted. Upper second molars may be extracted and intermaxillary traction applied with fixed apparatus or monobloc to move the upper dental arch posteriorly. When once a correct cuspal relationship of the cheek teeth has been established and a normal lip seal obtained, two important factors are operating for natural retention (*Fig.* 2 E).



Aged 16.



Aged 20.

Fig. 9.—Treatment in the late teens. Case of marked upper incisor crowding. Treated by extraction of $\frac{5|4}{}$. Retraction of $\frac{43|3}{}$ and alinement of incisors with removable apparatus.

The main disadvantage of deliberately waiting until this age is that in general practice one may constantly see the conditions deteriorating while the patient is visiting for conservative treatment. Where a fairly short active period of orthodontic treatment may prevent the deterioration it is a pity not to avail oneself of the opportunity (*Fig.* 8), nor is it always easy to alleviate the growing concern of a parent. The question of schooling has to be considered. In the case of children who go away to school for a whole term after the age of 12, it is most desirable that the main treatment be completed as far as possible before this time.

Of course if the patient does not present for treatment until the age of 12 or 14 years a result can be obtained providing the case has not been mutilated by the early loss of deciduous or permanent teeth and in which the defect is confined to the dental arches.

Only too often cases which do present for treatment at this age are not the result of a planned wait and have not been under constant care for conservative treatment. This applies not only to the Class II, Division I type, but to all types of malocclusion. There is gross crowding in both or either arches in addition to any discrepancy in anteroposterior relationship. Such cases can only be treated by rather radical extractions and the results obtained are far from perfect.

Lastly to consider the problem of late orthodontic treatment. This usually applies to treatment carried out in the late teens or twenties. Quite extensive orthodontic treatment can still be contemplated in the early part of this age range (*Fig.* 9), but only relatively simple procedures should be attempted in the twenties. The main factor to be remembered is that movement of teeth takes place far more slowly, in face of proper orthodontic pressures.

There is a considerable variation in response between individuals at this age, and pressures that are well tolerated by one individual cause trauma to the periodontal membrane and loosening of teeth in another. These variations in response are not so much dependent

on tissue reactions to pressures as on subtle differences in local environment and in inherited trends. Such variations (Pringle, 1946) are also found during treatment at an earlier age. It is therefore unwise to promise too much and co-operation must be 100 per cent to produce any sort of result.

Too often the patient's work (or vanity) does not allow the appliance to be worn in the daytime and social events tend to take precedence over treatment, but nevertheless the orthodontist is blamed for the lack of result.

SUMMARY

With the exception of a few isolated cases orthodontic treatment should not be contemplated in the complete deciduous dentition. During the two years in which the permanent incisors are erupting and finding their true position in the dental arches a number of relatively simple procedures may save considerable trouble at a later age. The age range between 9 and 11 years is probably the most important, but certain types of Class II, Division I, may be left until the eruption of the second molar. Late treatment should only be undertaken with a limited objective.

A plea is made for early observation of the developing dental arches and sound conservative treatment as "prevention is better than cure"!

My thanks are due to Mr. Rix and Mr. Pringle for permission to publish cases under their care at Guy's Hospital and for their help in the preparations of this paper; to Mr. Gwynne-Evans for permission to publish prints from cinefilms taken in the Upper Respiratory Research Unit, Guy's Hospital Medical School; to Miss Ball for the preparation of the models, and to Mrs. Small, of the Dental Photographic Department, Guy's Hospital Dental School, for preparation of all the illustrations.

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A MODIFIED RETAINING DEVICE FOR UPPER DENTURES*

By **H. J. TURKHEIM**, D.M.D. (Hamburg)

SOMETIMES it is desirable, for clinical and for psychological reasons, not to extract the existent six upper front teeth, when at the same time the missing molars and premolars have to be replaced.

The normal procedure for the following formula $\frac{321|123}{3|3}$ would be to fix the denture with clasps to $\frac{3|3}{}$. "The primary function of clasps is to retain a denture against the displacing force of gravity and of sticky food. Used in this way clasps are harmless; it is when they are designed to hold the denture rigidly in the face of any and all forces that they may destroy the abutments" (Craddock, 1951). In our case rigid metal clasps will not only show, but they will slowly loosen the abutments. To overcome this disadvantage there have been several types of stress-breaking clasps suggested by Roach (1932) and others. Their design and construction will warrant a longer life of the abutment.

The writer has tried to approach this problem from a different angle (1933), by modifying the rigid arms introduced for the retention of full upper dentures (*Figs.* 1, 2). These appliances prove quite useful, especially if the frontal alveolar process is protruding. Experience has shown that the effect of these

* Demonstrated at a meeting of the Continental Dental Society, London, 1950.

arms can be greatly improved by rendering them elastic.

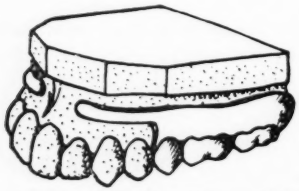
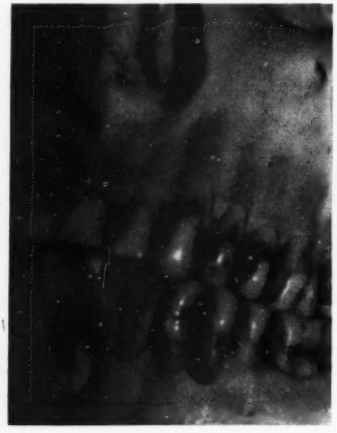


Fig. 1.—Rigid metal arms for retention of full upper denture. (*After* Kantorowicz, 1929.)

Although their construction is simple, a few points have to be observed:—

Fig. 3.—Protruding front teeth. The dotted area over $\underline{2}|$ circumscribes the retention space.

1. The greatest effect will be achieved in those cases where front teeth protrude (*Fig.* 3).



2. The gauge of the wires used for these arms should be 0·6–0·9 mm. Any hardened elastic wire (stainless steel for preference) can be used.

Fig. 2.—Rigid vulcanite arms for retention of full upper denture. (*After* Kantorowicz, 1932.)

3. The wire should not touch the mucous membrane; it has to be modelled over tin-foil; any unnecessary friction will thus be avoided. (*Fig.* 4.)

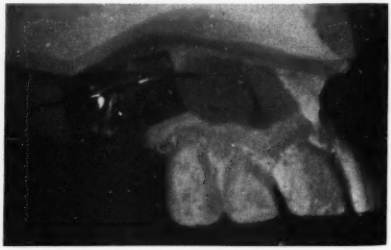


Fig. 4.—Stainless steel wire modelled and bent over tin-foil. The retention square is modelled in wax and exaggerated in size.

4. The active part of the appliance is a plastic oval or square fixed to the free end of the wire, the plastic resting on the mucous membrane and acting as the retaining device. Its size is approximately 6 sq. mm. ($\frac{5}{16}$ sq. in.).

Fig. 5.—"Incisal depression" visible over $\underline{2}|$.

5. The exact position of this plastic square or oval is essential for the proper working of

this appliance; it should rest on that part of the alveolar mucosa which can be described as the "incisal depression". This area will usually be found over the root of the lateral incisor. This "depression" is caused by the larger size of the adjacent roots of the central incisor and the canine, whereas the root of the lateral incisor is shorter and of a smaller diameter. (*Figs.* 5, 6.)

Fig. 6.—Elastic wire, carrying plastic retention plate on model and in mouth.

6. The plastic retaining plate should be thin and highly polished on either side.

7. There is a correlation between the wire-arm and the gauge of the wire: the longer the arm, the thicker the gauge, and vice versa (*Fig.* 6). A very good effect will be achieved with the wire emerging from the region of the first or second premolar (gauge 0·9 mm.).

8. This appliance has to be handled with great care, like rimless spectacles. The patient should be instructed as to its proper use. Any force has to be avoided when inserting or removing the denture or the wires will become bent.

9. In exceptional cases this device has successfully been used for partial lower dentures. The thorough observation of these suggestions will enable the technician to construct the appliance.

SUMMARY

A retaining device for partial upper dentures is described. Instead of the conventional clasps, well-balanced elastic arms, resting on the frontal alveolar process, counteract the force of gravity.

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REPORT OF A CASE OF PATHOLOGICAL GEMINATION

By **E. J. PERINT**, M.D., D.D.S. Hungary, L.D.S. R.C.S. Eng.

THE patient, a female, aged 44 years, had symptoms of an acute pulpitis on the right maxillary second molar. There was no evidence of caries clinically and, it was supposed radiologically that the tooth was affected by pressure of the impacted third molar. The distobuccal root of the second molar was not visible on the X-ray; a large pulp stone was observed in the mesiobuccal root of the second molar. In the X-ray there was evidence of pressure and that it was a case of pathological gemination between the two molars.

The routine extraction of the second molar was abandoned after this tooth offered an unusual resistance. The removal of both molars in a surgical manner showed a pathological gemination between the two molars and the complete absence of the distobuccal root of the second molar.

Fig. 1.

Fig. 2.

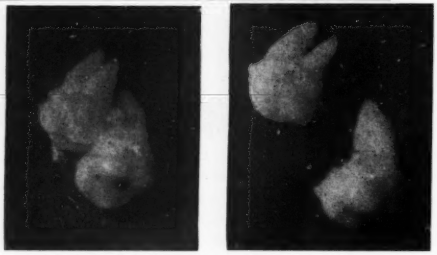


Fig. 3.

Later the two molars were separated. The mesiobuccal root of the second molar was markedly hypoplastic. Most probably the distobuccal root was originally present. The inherent tendency of growth and the eruption of the third molar caused excessive pressure on the periodontal membrane and resulted in the resorption of the interdental bone.

Afterwards the continuous pressure of the third molar affected the distobuccal root of the second molar. This process was probably more rapid than the obliteration of the pulp chamber of the second molar.

The cause of pulpitis was either infection of the pulp from the periodontal membrane or pressure of the third molar, which caused a strangulation of the vessels in the pulp. The latter supposition is most likely because the blood-supply of the second molar must have been impaired by the large pulp stone which was found in its distobuccal root.

Note.—*Fig.* 1 should be reversed, i.e., left side to right side.

THE THIRD DENTITION!

By **A. C. M. COXON**, L.D.S. R.C.S.I., B.Ch., M.B., M.R.C.S., L.R.C.P.

RECENTLY I removed an upper central incisor from under a denture worn by a woman of 54 who had worn a full upper denture since she was 16 and a lower one since the age of 22.

There was also an incisor under the lower denture and I suggested I should remove that. At her next visit, when feeling around, I felt what I thought was another tooth. I X-rayed the apparently edentulous gum and to my astonishment some 10 or even more teeth were present—all lying anyhow. (*Fig.* 1.) I removed the incisor and also the one I had felt.

As a matter of interest, I took an occlusal X-ray of the edentulous upper jaw and found another dozen unerupted teeth, again lying anyhow and not in any ordered position. (*Fig.* 2.)

I gathered from the patient that she had a number of decayed teeth removed at the age of 16 and again at 22.

These must have been retained milk teeth that had decayed because they had outlived their allotted time.

Fig. 1.—X-ray of lower incisor region.

I did not see that any useful purpose could be served by extracting these teeth, which were causing no discomfort. I suggested that each one should be dealt with as it erupted, otherwise very little of her jaws would remain if an attempt was made to remove them all at one time.

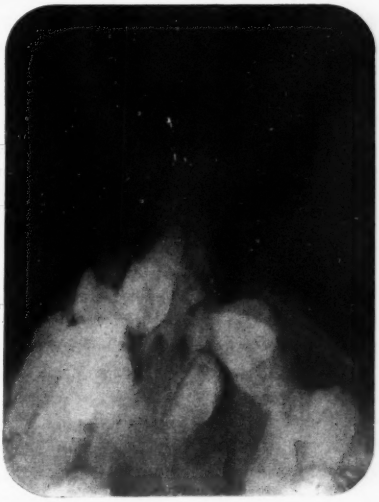


Fig. 2.—Occlusal X-ray of upper jaw.

PARTIAL DENTURES*

By **PROFESSOR JOHN OSBORNE,** M.D.S. U. Birm., F.D.S. R.C.S.

I CHOSE this subject—"Partial Dentures"—because, to be quite frank, this branch of mechanical dentistry is pretty poor in this country, and I would say the blame can be divided equally between those gentlemen whose names appear in *The Dentists' Register* and those who practise as dental technicians. This meeting to-night consists mainly of technicians and, therefore, I am not going to deal in detail with the purely chairside aspects of partial denture construction, except to apportion some of the blame which I mentioned a moment ago; for it is impossible for any dental surgeon to expect his technician to produce a satisfactory partial denture if the clinical work has not been done correctly. That aspect of partial denture construction commences with the decision on the part of the practitioner as to what sort of denture he is going to make, which teeth he is going to extract, and which teeth he is going to leave. A lot of unsuccessful partial dentures are unsuccessful for this reason, that right from the start the whole situation is more or less impossible. It is something which is not your fault. It is the duty of those of us in dental schools to see that future dental surgeons are better than some of their predecessors.

When the actual practical work commences, you as technicians must expect to receive adequate impressions, impressions which are accurate and on which you can design and produce good dentures. Impressions can be taken in various materials, but as far as I am concerned my partial impressions would be

* Being a Lecture given at St. Ermin's Hotel on Tuesday, Nov. 28 1950, and sponsored by the Dental Section of the Institute of British Surgical Technicians.

either composition or Zelex, and, in 99 per cent of the cases, Zelex. Some people say: Why bother to use Zelex, which reproduces undercuts ? Why not take composition and manipulate it once or twice so that the undercuts are eliminated by the "drag" of the material ? That may be all right in theory if you can be certain that the "drag" is confined to the necks of the teeth only. However, it should be perfectly obvious that the distortion of the impression will not be confined to that one particular area, and therefore I suggest that for every partial denture an impression in Zelex is what we want.

My first criticism of technicians concerns the treatment that many a Zelex impression receives before and during the time that a model is cast from it. Do, for goodness sake, cast your models as soon as possible; try and ensure that they have been immersed in 3 per cent alum solution immediately after removal from the mouth; and remove excess moisture from the surface before casting. Do not apply any pressure to the impression by inverting it on to a mound of plaster or stone. Either "box in" the whole impression, or cast in two stages.

While discussing Zelex, I should like to put in a strong plea for the use of special trays to take the Zelex impressions. It is very easy to take a stock tray and say "this will do"; but such a tray takes an impression which has thick sections in one part and thin in another—in other words, all over that impression are different thicknesses of Zelex, and the possibility of distortion of that impression during removal from the mouth is consequently increased; particularly does this apply to the large flabby section going into the palate and to the rather flexible extensions in the lingual area of a lower. A special tray, if made properly, gives support for the Zelex and a uniform thickness of material.

What is the next stage ? Probably we have got to take a bite, so you make bite blocks, sometimes with a wax base and sometimes with a shellac base. I have no strong views on this question, except obviously from the surgeon's point of view shellac is more rigid; from your point of view it is more time-consuming. If you are using a shellac base, trim it short of the standing teeth; there is then no possibility, when it is taken off and on, of rubbing the plaster or stone sides of the teeth. I am sure this happens very often, because when we fit the denture, not only is it a little tight round the teeth, it is *very* tight and we have to take a stone or file and start cutting away in all directions. When I was a student, the gentleman who lectured to us in prosthetics always said the model was sacred and it is perfectly true—the model *is* sacred.

Let us assume the bite is taken and we are ready for the next stage. This is the most important, to decide what sort of design the denture is going to have. Of course, we can spend all night and the best part of to-morrow talking about partial denture design. Somebody worked out that it was possible to have 600,000 alternatives of combinations of 28 teeth. Obviously we cannot have a design for each one, all we can do is to discuss general principles and each individual case must be dealt with on its merits. It is important to realize just how the technician stands, or how I feel he should stand, in relation to this question of partial denture design. I do not pretend that what we do in Birmingham must be right, but I will tell you how we work this dental-surgeon–technician relationship in the dental school there.

The surgeon who is doing the case, or supervising the student, decides on the basic design, whether skeletal, swaged-metal plate, or acrylic denture; he then decides whether it is going to be tissue borne or tooth borne. He then decides if clasps are necessary, which teeth are possibilities, and which are contra-indicated from a clasp point of view. From then on it is the technician's job to design that denture. There are certain exceptions where we have closer liaison than that, but for ordinary routine that should be perfectly satisfactory.

Having got that information as to the basic type of denture, and which teeth he must not clasp, the technician should be able to go ahead and design the denture. I feel that if you as technicians are worthy of the name and status that you desire, and which we in the profession think you should have, you should be capable of doing that.

That brings me to the next important point. Before commencing to design the denture you must survey the model with a tooth surveyor, sometimes incorrectly called a clasp surveyor. It is only by using this instrument that you can obtain the necessary information regarding tooth and tissue undercuts, tooth inclinations, survey lines, etc., from which you may commence to design correctly. Any partial denture which is made without the help of a tooth surveyor is only successful by accident. With the help of the valuable information obtained from a surveyor every partial denture can be scientifically designed, both in whole and in part; and in particular the clasps. From the survey lines one can decide which type of clasp will give the optimum retentive effect, the maximum bracing, and the best support for the denture. For successful denture design and successful denture usage a tooth surveyor is *essential.*

It is, I think, opportune at this meeting to mention a few of the salient differences between the basic types of partial denture designs. Let us take the ordinary tissue-borne partial denture made in acrylic. What advantages does it possess over the more complex type of skeletal design? Before we answer the question let us consider what we are aiming at when we make a partial denture. There are two important aims—restoration of appearance, and restoration of the power of mastication; maybe the one, maybe the other; or both. Now these two basically are easily achieved; any technician can set up anterior teeth so that they look æsthetic, and posterior teeth so that they articulate. However, whilst those are the two desirable ends, they must be achieved as far as possible with the minimum amount of damage to the mouth as a whole, and that damage can be very considerable with a bad partial denture design.

For example, if there are small spaces between the denture and the standing teeth, then these will act as food traps and it is likely that caries will be initiated in the teeth concerned. If a partial denture is allowed to sink into the mouth tissues, as it is certain to do unless provided with adequate support by occlusal rests, then it will press down upon the gingival tissues and produce a chronic gingivitis. If clasps are incorrectly placed they may have a similar effect and, in addition, may place undue stress upon the teeth they are clasping, resulting in loosening and ultimately loss of these teeth. A partial denture that is not securely and positively retained will, by virtue of its movement upon the alveolus, bring about rapid absorption of the alveolar bone.

All these undesirable things can easily happen, so in deciding upon the design of our denture these facts must be borne in mind. It is not possible, in my opinion, to design any kind of partial denture which will not do one or some of these things to some degree, but the severity of the damage can be minimized by careful design and good workmanship.

Let us return to the tissue-borne denture. What advantages has this type of design? In the first place one obvious advantage is that it has no clasps, and therefore the stress that may be transmitted to a tooth by a clasp is not present with this design. It is fairly easy to make, and cheap, but it has several disadvantages. It is a tooth stripper because it is fitted around the necks of the teeth, and, through the years, as the denture sinks it will to some extent damage the gum tissue around the necks of these teeth. As a result of having no clasps, its retention may not be quite as good as if it had clasps, consequently there may be a small amount of movement, not sufficient to embarrass the patient, but sufficient to bring about an increase in alveolar absorption. Consequently we are on the way to a flat ridge and a flat full upper and lower.

What about the other type of design, the denture which is largely tooth-borne, which derives most of its support from the teeth and occlusal rests? It has the advantage of being free, or largely free, from the necks of the standing teeth: it is supported by occlusal rests and therefore does not sink, and consequently is not a gum stripper; but it has the disadvantage that it will probably require two, three, or four clasps to hold it in place. Therefore, the amount of stress is increased.

One can go on for a long time throwing out these pros and cons, but it is these problems

one should bear in mind when designing any partial denture, and one must not forget the particular patient for which the denture is being made. It does not follow that because you have one model that is identical, regarding teeth standing, with another, that the design for the first is necessarily correct as a design for the second. That, of course, is not a matter for the technician; it is a matter for the surgeon, and it is one of the points he must decide from chairside inspection of the patient and pass his decision on to the technician. One has not time to dwell on many purely technical points, but there are one or two I would like to mention in passing.

The first one concerns cast dentures. When you are making a cast denture it is important that the thickness of the wax shall be adequate and uniform, and that the thickness of the clasps is uniform in terms of cross-section from the middle third to the end. The clasp must be thick towards the base and taper towards the extremity, not only in width, but also in cross-section thickness. Only by this means can a casting be obtained with a sufficient degree of flexibility and resilience so that it will go over the tooth and into its correct position without traumatizing the tooth or fracturing the clasp. I would suggest to anyone doing a number of cast dentures that a waxing die is a very useful aid to uniform casting; it enables one to be absolutely certain that the thicknesses are correct. Take your investment model, soak it in beeswax, remove it and you have the surface of the investment model slightly sticky. The patterns that you get out of the die will then stick to the model without any further sealing.

Another point which I feel is of value in cast work is investing in a vacuum to eliminate air from the investment, and consequently to eliminate the blobs which turn up on the best castings invested by hand.

Another point with which you may not be familiar. You are all aware of the type of case where you have a tilted lower molar which is wholly or partially out of occlusion with the upper teeth and it is desired to build up the occlusion on this tooth. You have to make some form of onlay over the surface of that tooth to do this, and it can be made in two ways: either in cast gold or acrylic resin. From one point of view, acrylic resin is better because after it has been worn for a fortnight or three weeks it will be ground into very good occlusion, but when the patient comes back after six weeks it may be broken off! If you make it in gold it does not break, but there is much more difficulty in getting it adjusted correctly. The way out of this, which was suggested by Mr. Mack, is to make a thin casting over the occlusal surface with a key-way incorporated on it. Over this is processed acrylic resin to complete the occlusal contact. This is worn for several weeks, until it is ground into occlusion perfectly. The resin is then removed from the key-way on the casting, a sprue is attached to it and it is invested and cast in gold. The resultant gold replica of the resin is then cemented to the original casting and adequate strength and perfect occlusion result. It is perhaps not generally appreciated that acrylic resin can be invested, like a wax pattern, and a casting made from it. The resin depolymerizes when the investment is heated and leaves a perfect mould free from all residue.

There is only one other thing I would like to say. You are well aware that in all other countries there are available casting alloys, such as Vitallium, which are basically stainless alloys that can be cast. Owing to our financial situation it has not been possible until now to have this type of alloy in this country as a denture base material. The complexities of the technique, which are rather different from that for gold, and the amount of special equipment needed, makes it necessary for the work to be done solely by laboratories to the profession. Accordingly such laboratories carry a considerable responsibility in terms of design and other factors allied to it, for we depend entirely on them for this type of work; and any of you who are considering doing it must be prepared to give time to mastering the technique required.

> "Divine is the work to relieve pain."
>
> —HIPPOCRATES.

THE DENTAL SURGERY ASSISTANT

By D. R. CARRINGTON

It is a matter of personal opinion and preference whether a dental practitioner employs a dental surgery assistant; every dentist is entitled to his own views on this subject in relation to his own practice, but with the expansion of the National Health Service the efficient running of a practice becomes a matter of public concern where the patient expects the maximum amount of clinical attention.

That the employment of some form of assistance is necessary in order that the dentist may devote more time at the chairside and less in the routine administration of the practice must be obvious. Less obvious is the extent to which this work may be divided, and the responsibility shared.

Much will depend on the individual capability of the assistant, and whether trained or not. Training facilities for dental nurses are now available at a number of dental hospitals, and the British Dental Nurses' and Assistants' Society conducts an examination and also maintains an employment bureau. With the present shortage of trained dental assistants, the dentist will perhaps decide to offer training to suitable applicants, and it is hoped that a brief guide as to the scope of this training and the order in which it may be covered will not be out of place.

Of paramount importance is the fact that the dental surgery assistant is, in the majority of cases, the first person with whom the patient comes in contact on entering the surgery and is, therefore, the dentist's personal representative.

A neat and tidy personal appearance is essential, and much can be done by providing the assistant with an individually tailored white coat, which not only creates a good impression on the patient but also gives self-confidence to the wearer. Appearance in itself is not enough, but must be combined with a courteous manner and an orderly, intelligent mind; given these qualities, together with some methodical instruction, the training period should be a pleasure both to pupil and instructor.

The work may conveniently be divided into two sections: Clerical, and Clinical; and by teaching the clerical subjects first the assistant will be able to conduct this side of the practice at the earliest opportunity, at the same time learning, by observation, part of the clinical work.

Clerical.—

1. Professional etiquette.
2. Appointments—personal, phone, or by post.
3. Reception of patients.
4. Preparation of records before each appointment.
5. Entering of records after appointment.
6. Petty cash book—stamps, laundry, etc.
7. Order book—materials, instruments, repairs.
8. Method of charting and nomenclature.
9. Packing and despatch of prosthetic and other work.

Clinical.—

1. Cleanliness of surgery and apparatus.
2. Identification and use of instruments.
3. Sterilization of instruments.
4. Layout of instruments for various operations.
5. Preparation of filling materials.
6. Theory of anæsthesia.
7. Preparation of patient for general anæsthesia.
8. Chairside assistance.
9. Post-operative care of patient.
10. Maintenance of apparatus and instruments.
11. Elementary dental anatomy and oral hygiene.
12. Prosthetic procedures—in surgery and laboratory.
13. Radiography: development of radiographs.
14. First aid.

The scope of the syllabus outlined above is elementary, but it should ensure that the

principles underlying the work are thoroughly understood. Elaboration of the various branches may then be undertaken if the pupil shows a special aptitude. Mistakes are bound to occur: these should be corrected as soon as possible afterwards, and never in front of the patient. In larger practices where more than one assistant is employed much confusion can be avoided by clearly defining the duties of each.

Furthermore, if one remembers that to the newcomer the realms of dentistry must appear strange, and therefore makes due allowances for initial mistakes and explains each step or procedure as clearly as possible, the trainee assistant will naturally acquire a greater interest in the work and will be more anxious to maintain and even improve the standard of the day-to-day management of the practice.

XIth INTERNATIONAL DENTAL CONGRESS

LONDON, JULY 19–26, 1952

THE Congress badge reproduced above will shortly be seen in a larger form on the windscreens and rear windows of many cars in this country.

It is anticipated that it will serve as a reminder to other dental practitioners, and to the public, of the importance of this Congress.

As is well known by now, it is being held in the Royal Festival Hall and will be representative of almost every country in the world, and will cover a wide variety of dental subjects.

The scientific reports are being published before the Congress in four quarterly issues of the International Dental Journal. This system is unique as it will permit a far longer time for discussion and reply at each session.

Table demonstrations are always both interesting and instructive at any dental meeting, and at this Congress it is planned to have thirty demonstrations which will be changed at each of the ten sessions. In addition to these demonstrations there will be a large number of Scientific Demonstrations on exhibition throughout the meeting. A continuous film show and the Telecinema are certain to be popular features.

There are planned, too, several meetings of the Research Group, when many of the world's most eminent dental scientists will be discussing problems of mutual interest to further the progress of our profession.

The Dental Trade Exhibition, housed in the spacious foyers of the Royal Festival Hall, will undoubtedly attract every visitor. Such an opportunity has never occurred in this country before and space has been taken by all the leading dental manufacturers and supply houses not only of this country but of Europe and the United States.

The modern concept in the treatment of disease may be summed up by the word "Prevention". The Oral Hygiene Exhibition which is being organized in the County Hall will depict by means of models, posters, films, and displays what many countries are achieving in this direction. The objects of this exhibition are threefold: to show the practising dentist how best he may educate his patient; to show the schoolteacher how he or she may educate the children; and to show the parents the importance of clean and healthy mouths and how these may be obtained.

An extensive programme of social activities both for members of Congress and their wives and relatives has been planned. This consists of tours in and around London, receptions, banquets, and a Congress Ball at the Albert Hall styled on the lines of the Chelsea Arts Ball. The ladies will have their own programme and they will be made most welcome.

The organization of such a large International Congress requires careful planning and the dozen or so committees which have been at work for over three years believe that they will provide an interesting, instructive, and enjoyable occasion for all who attend.

Further information or an enrolment form may be obtained from the Hon. Secretary at 13 Hill Street, London, W.1.

PARLIAMENTARY NEWS

The Economic Debate

Speaking in the economic debate, Mr. C. R. Attlee (Leader of the Opposition) stated that the efficiency of the dental service was going to be cut by deterring people from doing what all the dentists were always asking the public to do—to go regularly to the dentist every few months.

Mr. Aneurin Bevan (Lab., Ebbw Vale) stated that Mr. Churchill had thanked the miners for the effort they were making. How did he reward them and the industrial workers? "By rotting their teeth", said Mr. Bevan. The Chancellor was adding to the numbers of people seeking public assistance because he said that if any person could not afford to pay the pound they could go to the Assistance Board and prove it. That meant more staff, more interrogation, humiliation, and means tests. "What for?—For the miserable number of pounds he is having", he said. There was nothing in the financial situation that justified the charges. The Health Service was being crippled. "Don't tell us you are supporting the School Dental Service" he told the Government members. "You cannot take credit for financial saving and at the same time expect children to get it.

"Large numbers of children are treated in the general service and it was always the intention that the general service should absorb the School Dental Service, because it is more competent".

Miss M. Herbison (Lab., Lanarkshire N.) "We as a nation have often been criticized by the Americans for our bad teeth. They used to say they knew people from the old country because almost every one who arrived from Great Britain wore dentures. Our dental service was beginning to cure that. People in the last few years were beginning to go regularly to the dentists for preventive treatment.

"These charges are going to make it impossible for many of these people to have that preventive treatment.

"If there is no preventive treatment any doctor will tell you what serious illnesses can come from neglected teeth. In trying to save this miserable sum of money we are piling up disease and illness in the future, besides the hardship we are putting on many people."

Mr. H. F. C. Crookshank (Health Minister), winding up the financial debate, said no vast scheme like the health scheme could be expected to be perfect from its inception.

Instancing the dental part of the scheme, he said the Labour Government had made the best estimates they could at the time but they were entering an uncharted field. They had no idea how many people would come forward for treatment, and they had had to change dentists' remuneration three times.

Mr. Crookshank recalled that the previous evening it was alleged that Northumberland, Cornwall, Buckinghamshire, and Somerset were cutting down the School Dental Services. That was untrue.

Cornwall was advertising for more dentists. He had a telegram from Somerset.

Mr. Peart (Lab., Workington) said the Minister was wrongly informed. Buckinghamshire had decided to cut down, and he had the minutes of the Kent County Council, cutting down the school medical services, reducing the dentistry service by £6500.

Mr. Crookshank said he imagined it was a case of estimates.

Opposition members shouted "withdraw" and Mr. Peart protested, but Mr. Speaker silenced the House and Mr. Crookshank stated "I have no reason to suppose my sources of information are incorrect." (*Th.*, *Jan.* 31.)

Emergency Dental Service

Mr. Peter Freeman (Lab., Newport) asked the Minister of Health whether he would arrange that an emergency dental service shall be available whereby anyone can secure immediate temporary treatment if away from home or otherwise prevented from being attended by his own registered dentist.

Miss Hornsby Smith, Parliamentary Secretary, in a written reply: Under the National Health Service people can seek treatment

from any dentist taking part in the Service, and Executive Councils have been asked to seek the help of the profession in making suitable arrangements, whether by rotas or otherwise, to provide for dental treatment in an emergency. (*Th.*, *Jan.* 31.)

The Dentists' Bill

The second reading of the Dentists' Bill was moved in the House of Lords on Tuesday, Feb. 5, by Lord Woolton (Lord President of the Council).

He summarized the Bill's three main objectives: to grant dentists the status and dignity of a self-governing profession; to regulate the admission of foreign and Commonwealth dentists to the Dental Register; and to provide for the training of ancillary dental workers. He said the Bill represented the final step in the progress towards the position when the profession may be entrusted with authority for registration, discipline, and education.

Speaking of the provision of ancillary dental workers, he said: "Certainly no further proof is now needed that the public dental service for the priority classes of expectant and nursing mothers and young children is in serious need of additional man-power. The shortage of dentists for pre-school and school children is particularly acute." Clearly, that with wastage due to retirement, the number of dentists on the Register was likely to increase but slowly. In ten years just before the war the annual entry into dentistry was about 340; during the last five years 600–650 students entered dental schools.

The dental schools' capacity had been used to the utmost in recent years and much consideration had been given to possibilities of further expansion, but such expansion was costly and inevitably slow.

"If ancillary workers are to be introduced into this country there should be no danger of a fall in the standard of dental treatment, and there is every prospect that they may eventually help to fill a serious gap in the present health services—a gap which otherwise could be filled only by speeding up the training of registered dentists, with the inevitable consequence of a lowering of the present very high standards of professional qualifications. Many thousands of children are now being deprived of dental aid and education. I think it is important to the nation's health that we should seek whatever means are at our disposal for meeting this end", he said. The provisions relating to ancillary workers were reasonable and sensible, and the dental profession itself was well protected.

Lord Teviot, referring to the placing of the ancillary workers under a dental surgeon's supervision, urged that it should be "personal" supervision, without which, he said, his Committee apprehended great danger.

He recalled seeing, during a Chinese tour, tin mugs and toothbrushes hanging up in every school and works. "And there the people had the most wonderful teeth", he said. "I wonder how many children here know how to clean their teeth properly—I doubt indeed whether a great many grown-up people know. I am a great age (he was born in 1874) but I have lost only four teeth. I put this down to the fact that after every meal I clean my teeth. Decay of teeth, as everyone knows, is caused by particles of food getting between the teeth and being left there for hours, or days. I believe that oral hygiene, plus the toothbrush—in the use of which the oral hygienist would instruct people—would enormously reduce the number of patients in schools."

He very much regretted the new charge of up to £1 to be made in the dental service. "I believe the number of patients will be enormously reduced", he added. Regarding schools and children, the situation was undoubtedly deplorable. They were appallingly short of treatment and inspection. I would like to see a reduction in the service to adults with an increase in the children's service. It barely offered a living for a dental surgeon to become a children's dentist. "We have to offer the inducement of a reasonable return for work of that sort", he said. He could not agree that people with only two years' training should be permitted to embark on extractions and fillings.

Speaking of the three-year experiment he said that after that time there would be people operating as a dental surgeon did—

scaling, cleaning, polishing, extracting, and filling—"a frightful responsibility to take".

"Suppose that at the end of the three years' experiment, it proves to have been a failure. It is horrible to think of what harm may have been done in those three years. I am afraid I cannot in any way support that idea", he said.

Lord Nathan said the Bill marked the coming to maturity of the dental profession. It had for long been under some degree of tutelage.

Lord Webb-Johnson pleaded that the Government should go slowly and be content with developing a big corps of oral hygienists. "After all", he said, "we are to-day in this difficulty because someone tried to go too fast."

He was in favour of encouraging the training of ancillaries or "dental nurses", provided the limits of their activities were narrower than at present laid down in the Bill.

Lord Burden said that many parents had made heavy sacrifices in order to give their sons opportunity to undertake the long and expensive training necessary to qualify as surgeon-dentists. Unless the Bill was drastically amended the number of parents prepared to undertake that sacrifice would be seriously diminished.

Lord Haden-Guest agreed that ancillary dental workers trained for two years could not possibly have the same experience, clinical knowledge, and judgement as well-trained dental practitioners, "but an ancillary dental worker is very much better than no-one at all".

Lord Amulree, Lord Williams, Lord Mancroft, Lord Silkin, Lord Rochdale, and the Earl of Onslow also took part in the debate.

The Bill received an unopposed second reading.

National Health Service

Mr. MacColl (Lab., Widnes) asked the Secretary of State for Scotland how actual expenditure, to the nearest convenient date, upon the provision of dentures and spectacles by the National Health Service compared with the revised Budget Estimates submitted by his predecessor after the institution of charges for these articles.

Mr. Stuart, in a written reply, said: The revised estimate was for expenditure in the whole of the financial year and no separate estimate was given for the provision of dentures. It is probable that the expenditure on the General Dental Service as a whole will be about equal to the revised estimate, while that on the Supplementary Ophthalmic Service will be about £50,000 below.

(*T.*, *Feb.* 19.)

Dental Mechanics

Sir Walter Monckton (Minister of Labour), in a written reply to Mr. George Thomas (Lab., Cardiff W.) said: Six dental mechanics were registered as unemployed at the Cardiff Employment Exchange. There were no vacancies in their own trade, but everything possible was being done to find them suitable alternative employment. (*T.*, *Feb.* 19.)

DENTAL BOARD OF THE UNITED KINGDOM

SIXTY-FIRST SESSION

At the sixty-first session, held Nov. 15 and 16, 1951, several disciplinary cases were considered.

The Reports of the Dental Health Education, Education and Research, and Finance Committees were presented. For the year 1952 expenditure is estimated to exceed income by £3600, as against an estimated deficiency of £5300 in 1951.

Of the disciplinary cases one was resumed on Dec. 13, when the Registrar was directed:—

To remove the name of Sandor Schlesinger from the Register.

At the same meeting the following decisions of the General Medical Council were reported:

The erasure from the Register of the name of Malcolm Lloyd Williams.

The restoration to the Register of the name of Eric Hargreaves Swan.

CATALOGUE OF FILMS

(*Continued from p.* 184)

Films on Oral Hygiene

OH.3.—*Dental Prophylaxis: Scaling and Polishing* (Royal Dental Hospital—1949); 60 minutes; 16 mm.; colour; silent.

The various instruments used in scaling are shown together with their uses, first on a model and then on a patient. Finally the operation of polishing all teeth in the mouth is demonstrated in detail.

Films on Oral Surgery

OS.1.—*Limited Alveolectomy and Frænoplasty* (Mr. Bowdler Henry—1931); 28 minutes; 16 mm.; monochrome; silent; hire charge £1.

OS.2.—*The Extra Oral Approach to the Removal of a Misplaced Tooth* (Professor Talmage Read, Leeds); 15 minutes; 16 mm.; colour; silent.

This film shows the clinical and radiographic appearances of a patient with cellulitis due to a misplaced 3rd molar situated in the ramus immediately under sigmoid notch. The operation for removal by external approach is demonstrated.

OS.3.—*The Extra Oral Approach to the Removal of the Unerupted Tooth* (Professor Talmage Read, Leeds); 15 minutes; 16 mm.; colour; silent.

This film shows the clinical and radiographic appearance of a patient with a sinus on the face due to a buried lower left second premolar.

OS.4.—*The Treatment of Ankylosis of the Jaw* (Professor Talmage Read, Leeds); 45 minutes; 16 mm.; colour; silent.

This film shows two cases: (*a*) the first case illustrates a unilateral ankylosis of congenital type with limitation of movement of the jaw from birth. The operation on the ankylosed jaw is demonstrated together with the post-operative result and the use of an intra-oral splint to correct occlusion; (*b*) the second case is a bilateral ankylosis showing the technique of treatment and the improvement later of the appearance by means of an epithelial inlay and prosthesis.

OS.5.—*The Treatment of a Bilateral Fracture* (Professor Talmage Read, Leeds—1949); 15 minutes; 16 mm.; colour; silent.

This film shows the clinical and radiographic appearances of a case of double fracture of the lower jaw which are shown together with the method of treatment by external pin fixation demonstrated.

OS.6.—*The Treatment of Carcinoma of the Lip by Radium* (Professor Talmage Read, Leeds—1947); 10 minutes; 16 mm.; colour; silent.

This film shows the radium treatment of a squamous carcinoma of the lip in a male patient aged 76 with the clinical appearances before and after treatment. The measuring of dosage is also demonstrated.

OS.7.—*Hemiresection of Mandible for Adamantinoma with Reconstruction by Massive Iliac Graft* (Dr. Schulenburg, South Africa—1950); 15 minutes; 16 mm.; colour; silent*; hire charge 10s.

This film is in two parts: one shows the removal of an adamantinoma involving the right half of the mandible and post-operative splintage by means of metal cap splints of the upper jaw to the remaining half of the lower. The second part shows the preparation and insertion of the iliac bone graft.

Films on Prosthetics

PR.1.—*Compo-Plaster Impression Technique* (University of Leeds); 12 minutes; 16 mm.; colour; silent.

This film is self-explanatory. It demonstrates the use of a composition impression as a special tray in obtaining an accurate plaster impression of an edentulous mouth.

PR.2.—*Full Denture Construction* (Professor R. O. Schlosser); 40 minutes; 16 mm.; monochrome; silent; hire charge 30s.

PR.13.—*Tooth Surveying and its Influence on Clasp Design* (Messrs. Anderson and Aspin, Birmingham—1949); 15 minutes; 16 mm.; monochrome; silent*; hire charge 10s.

This film shows the theory and practice of surveying a lower model for bands. It suggests clasp designs have various types of survey lines.

Films on Parodontics

PA.2.—*Radical Operative Treatment of Paradontal Pyorrhœa* (Professor Neumann, Berlin); 15 minutes; 16 mm.; monochrome; silent; hire charge 10s.

This film has historical value in relation to conservative procedures of Continental dentistry. It is not in keeping with current British practice.

PA.3.—*Surgical Treatment of Pyorrhœa Alveolaris* (Professor Stones, Liverpool—1932); 15 minutes; 16 mm.; monochrome; silent; hire charge £1.

This is a complete record of the operation of gingivectomy on a patient aged 19½ with hypertrophic gingivitis, showing: clinical appearance; radiographic condition; description of operation under local anæsthesia, using special scalpels and scissors; removal of incised portion of gum; treatment of cut margins of gum with electric cautery; covering of denuded gums with medicated wax; condition one month after operation.

* An asterisk denotes that a commentary can be supplied with the film.

It will be noticed that the hire charge has not been stated for certain films. These films will be available in the near future.

GIBBS TRAVELLING SCHOLARSHIP

The Gibbs Travelling Scholarship has been awarded to Mr. P. M. C. James, a member of the staff of the Eastman Dental Hospital.

This Scholarship, to the value of £300, will allow the winner to study dental health propaganda in Scandinavia. He will spend three months visiting the dental schools at Copenhagen, Malmo, Stockholm, and Oslo. His findings will be presented subsequently at a meeting of the British Society of Periodontology.

The administration of the Scholarship is in the hands of a committee of the British Society of Periodontology, consisting of Messrs. S. Cripps (President), H. Thomson, G. H. Leatherman, and C. Davis. Dr. E. Wilfred Fish very kindly joined the committee in making their final selection.

The winning thesis will be published in the April issue of The Dental Practitioner.

ABSTRACTS
from Other Journals

Inarticulation of Complete Dentures processed by the Compression Moulding Technique

The influence of closing pressures on the increase in vertical dimension of acrylic dentures occurring during processing is investigated. A survey showed this increase to average 0·5 mm. to 1 mm. measured at the incisal guide-pin. Steel balls in the place of teeth on a waxed-up denture base gave indentation registrations on a plaster slab, and the indentations were correlated with pressures by means of indentations made under known loads; 800 lb. per sq. in. pressure in the resin was found to be an average in practice, and corresponded to a closing pressure of 5000 lb. Using investment materials of high resistance to indentation, this gave an increase of vertical dimension of 0·63 mm. Tests in which the pressure within the resin were much below 800 lb. per sq. in. showed no reduction in this figure. It was found that many standard bench presses can exert more than 5000 lb. pressure on denture flasks, and that the resin in the flask does not exhibit sufficient flow to equalize the strains.—MAHLER, D. B. (1951), *J. prosthetic Dent.*, **1**, 551.

Report of a Case of Root Resection performed under Hypnosis

The authors report a case of a 19-year-old woman who underwent the operation of root resection whilst in a hypnotic state. The patient had declined the use of both general and local anæsthesia and had herself asked to have the operation performed under hypnosis by a person of her own choice.

The operation was attended by two dental and two medical witnesses and carried out in a practically bloodless field with no after-effects.

The patient was received and inducted in a perfectly normal manner, the routine of the ordinary surgery being carried on as if nothing unusual was happening. The general appearance of the patient was of a person quietly reclining in a light sleep, the eye reflexes being present but the knee reflexes abolished, while the pulse-rate was 100.

The two points to note in this case were the lack of both blood and post-operative œdema. The author understands that the lack of bleeding is a feature of surgery performed under hypnosis, explained perhaps by a contraction of the musculature during this state. Before the patient was awakened by the hypnotist she was told that she would have no after-effects and no swelling. This did actually occur, but the author carefully explains that this does not prove that œdema may be controlled by hypnosis, although in this particular case it was to have been expected. —NOAKES, P. (1951), *N.Z. dent. J.*, **47**, 147.

The Practical Application of Regional Penicillin with Local Anæsthesia in Dentistry

The administration of a local anæsthetic in the presence of infection has always presented a problem to the dentist. Inflammation near the site of injection contra-indicates the use of local anæsthesia because of the possibilities of mechanical spread of the infection.

The therapeutic value of locally implanted penicillin is now well established, but as these injections are usually painful, the possibilities of elimination of the pain was investigated by the authors.

The combination of monocaine hydrochloride (butethamine hydrochloride) and epinephrine solution with crystalline penicillin 100,000 units was found to be a satisfactory and painless method of local injection of penicillin as a therapeutic agent. Also, anæsthesia was rapidly established and post-injection pain and discomfort eliminated. The epinephrine content also had the effect of maintaining anæsthesia and delaying the diffusion of the penicillin by reducing the blood-flow in the area.

The results obtained with procaine were unsatisfactory, as a flocculent precipitate of procaine penicillinate was formed and the anæsthetic qualities of the procaine were lost.

The technique of injection is simple. By means of a special aspirating syringe, the crystalline penicillin solution is aspirated into a cartridge containing the monocaine-epinephrine solution. The injection is made outside the involved area and the needle is directed towards the centre of the infected site, and a small quantity of the solution is deposited.

This is repeated several times around the affected part so that it will be circumscribed as far as possible.

The authors mention a large number of cases; the most successful results included the treatment of pericoronitis, periapical involvements, extraction of acutely infected teeth, abscesses, cellulitis, osteomyelitis, cysts of all types, and traumatic wounds, and in the palliative treatments of acute conditions.

It must also be remembered that intramuscular penicillin therapy is essential treatment where infection has become generalized. —BLUMENTHAL, E., and CATANIA, F. (1951), *Modern Dentistry*, **18**, 3.

BOOK REVIEW

ORAL AND DENTAL DISEASES. By HUBERT H. STONES, M.D., M.D.S., F.D.S. R.C.S. Second edition. Pp. 1032, with 959 illustrations (91 in colour). 1951. Edinburgh: E. & S. Livingstone. 100s.

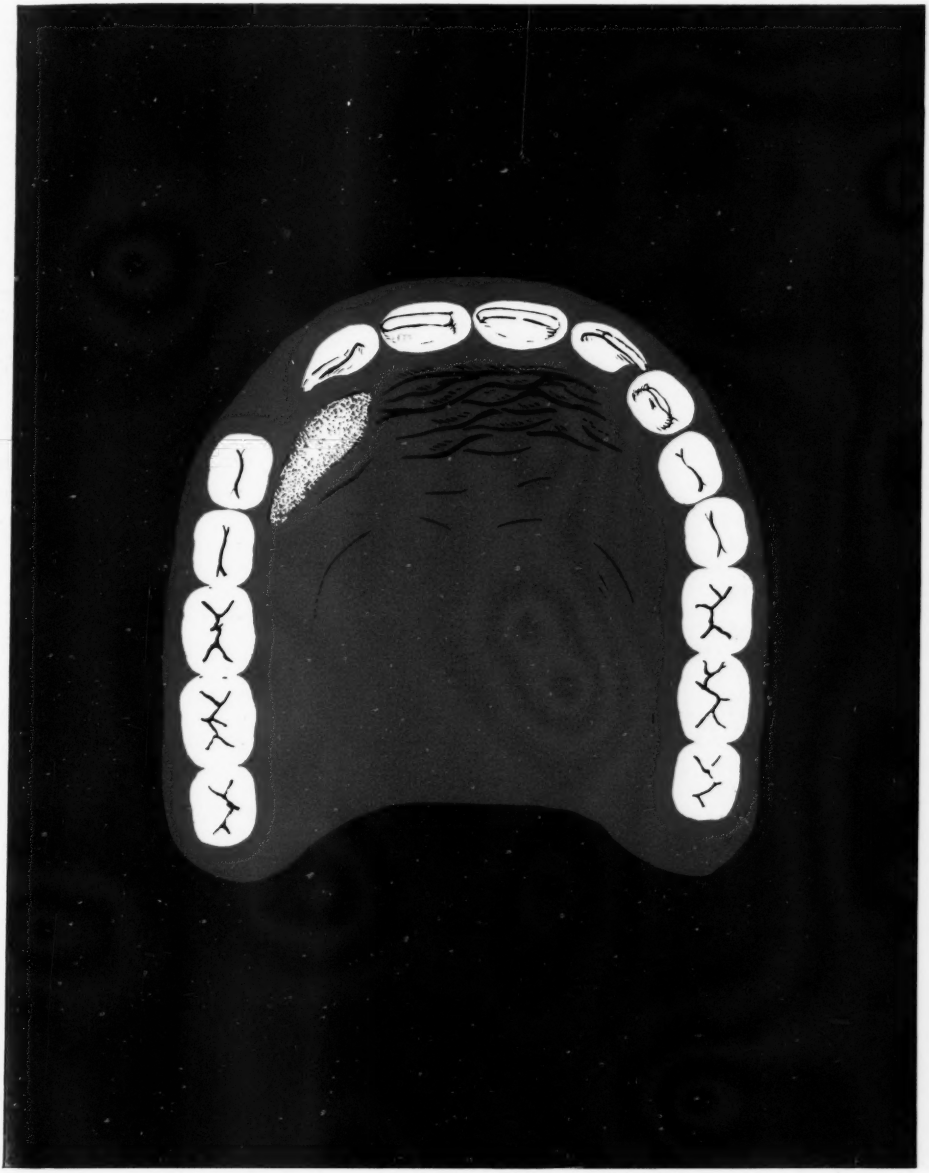
As nearly all the superlatives were used up on the first edition of this brilliant book by Professor Stones, there are few words left to describe it without mere repetition of past reviews. It is without doubt the finest book ever produced in this country on oral and dental diseases, and its author is to be congratulated on this the second edition. The first edition was only published in 1948, but has proved to be so popular that it is now essential to every library shelf. To those teaching this subject it has been of the greatest help, for its clearness and conciseness have enabled many a student to a fuller understanding of dental surgery. The excellence of its production and illustrations gives added force to the text and make it easy to read and follow.

Professor Stones, with his broad clear view of pathology, ranges over the whole aspect of oral and dental diseases with particular attention to the correlation of clinical features with pathology. In this new edition new material has been added to make the picture even more clear and instructive, and all the chapters have been carefully revised. A long list of the subjects discussed would be of no value in this review; suffice it to say that there appears to be nothing left out, either of modern research or of tried and proved theories. Many of the chapters reflect the author's own immense experience in the field of dental research—traumatic occlusion, malocclusion, caries, and tumours, to mention just a few. The dominant feature of the book is pathology, but a careful balance is maintained between aetiology, pathology, clinical features, and treatment. In some diseases which are sometimes classified under dental medicine, it passes through the mind that where they are labelled cause unknown or cause obscure, may they not be in effect of psychosomatic origin (e.g., Aphthous Ulcers)? It is correct not to mention this aspect in such a text-book as no proof or theories can be offered, but occasionally that much overworked word "allergy" creeps in as a possible cause. In some modern books it is felt that the use of this word is merely a cover for an undiscovered cause. The unconscious idea being perhaps that diseases of psychosomatic origin have little tangible about them and there is nothing to see down a microscope. At the same time modern medicine is expected to know the cause of all, so a label must be found. The word "allergy" suits the modern mood. However, Professor Stones is far too experienced in learning and teaching to fall into such a trap, and always gives an honest and impressive summary of the obscure diseases. He frankly labels the cause of a disease "unknown" if it is acknowledged to be unknown. This gives plenty of encouragement to the young research worker who may feel after reading the book that there is little left to do, as it is so full in all particulars of this branch of learning.

N.L.W.

COLOURED CHART No. 10. (FOR YOUR PATIENT'S INSTRUCTION)

THE DANGER OF BURIED TEETH



Teeth may remain completely buried in the jaw and their presence can only be detected by a radiographic examination. This picture shows the upper right canine tooth which is not in a position to erupt and will require surgical removal as it may damage the adjoining teeth.

OFFICIAL SUPPLEMENT OF THE

SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION (INC.)

DENTAL LABORATORIES SECTION

Chairman: E. G. EMMETT, F.I.B.S.T.
Administrative Offices: 6, HOLBORN VIADUCT, LONDON, E.C.1
Telephone: CITY 6031

No. 12 March, 1952

Editorial Committee: MR. C. M. BOOTH; MR. H. J. POTTER, F.I.B.S.T.

EDITORIAL

TWO things will be paramount in our minds —the findings of the Industrial Disputes Tribunal and the new "Dentists' Bill".

We are staggered that an award should have been made by a Government-inspired body, when, at the same time the Ministry found it necessary to reduce the scale of charges for prosthetic work, and now make new regulations concerning the fees for conservative work. The ranks of unemployed technicians, already considerable, are increasing and will increase still more; it is lamentable that many skilled and experienced craftsmen will be lost to the profession as a result.

In other industries it is usually possible to pass on any extra cost in production to the consumer, but in dentistry we are faced not only with increasing costs in overheads and materials, but now with a substantial increase in salaries for technicians, none of which may be balanced by an increase in fee for the finished product!

The practitioner cannot be blamed for sending his denture work to the cheapest possible laboratory, but this Association is again pressing to open up discussions which we hope will lead to a payment direct from the Ministry to the members of the Association for a high-grade product. Should not the public we serve have the first consideration and be assured of something they can use?—more particularly as they are now required to provide a large proportion of the cost, in cash payment and weekly contribution, as well as in many indirect ways.

It has been agreed by all representatives on the N.J.C. that a very large proportion of technicians are in receipt of a considerably higher salary than the minimum for their grading, and in view of the large number of those whose salaries must now be reviewed as a result of the award, it will be necessary to define more clearly exactly what constitutes a Grade I or Grade II technician.

The terms of the new "Bill" have caused consternation within the profession, and it is felt in all spheres that, for the benefit of the patient, ancillaries are quite undesirable. It has been argued that these latter are needed because the hospitals and clinics have been understaffed, but with the new adjustment to the N.H. fees and less patients for the practitioner to deal with, this condition would surely adjust itself.

This organization is pressing, and will continue to press, for the deletion of clauses 18, 19, and 20 from the Bill. If, however, this is not possible, then it is devoutly hoped that technicians of experience and *adequate qualification* will be given an opportunity to participate should they desire so to do.

The revised syllabus of the City and Guilds of London Institute for Dental Technicians is now almost completed and has the appearance of something far more realistic than hitherto. The ancillary subjects have been rearranged

to be more closely related to the requirements of the dental technician, and less of the advanced practices are to be included in the Final examination. A Full Technology Certificate will be awarded after a further period of study of the more specialized subjects. The new syllabus will be published in this Journal as soon as it has been finalized.

ELECTROPOLISHING OF STAINLESS STEEL DENTURES

A précis of the lecturette by Dr. H. E. Zentler Gordon at the last table demonstration meeting of the Croydon Branch, S.I.M.A.

In operation, electropolishing is more closely allied to electroplating than to the mechanical polishing methods. Where in electroplating an electric current is passed through a solution of a metal which is deposited on the cathode, in electropolishing the metal to be polished is made the anode in a mixture of acids, where it is subjected to a controlled dissolution, by which the surface is progressively smoothed and made bright.

The surface obtained by this means differs from that obtained by mechanical polishing in that the original and chemically clean structure of the metal is left exposed, in distinction to the mechanically polished surface, where the metal is partially melted and flowed over into a thin amorphous layer which covers the crystalline structure of the metal.

There are four major advantages of electropolishing over mechanical methods:—

1. *Costs.*—Stainless steel is a very hard metal, and difficult to polish mechanically. Two or three separate operations are generally necessary until the required finish is obtained, while the time taken for polishing, and hence the cost of the process, rises steeply when the work is of complex shape.

In electropolishing the shape of the article is largely immaterial.

2. *Corrosion Resistance.*—Owing to the chemically clean crystalline structure of the surface left by electropolishing, the metal is markedly more resistant to corrosion by acids and alkalis than the flowed mechanically polished surface. Dentures will, therefore, remain polished longer.

3. *Deformation.*—With thin-section parts of dentures there is danger of deformation when too much pressure is exerted against the polishing mop. The risk of rejects, and, incidentally, also the amount of skill required, is much less in electropolishing.

4. *Cleanness.*—Electropolishing avoids the dirt and dust which is inseparable from mechanical polishing, and can easily be carried out on a small scale without the risk of contamination to other work in the same workshop.

Electropolishing Solutions.—When a metal is made the anode in an electrolyte in which it is dissolved, the effect on the surface will depend largely on the solubility of the reaction products in the solution as well as on the operating conditions employed. Where no adherent deposit is formed, as, for instance, in anodizing, and if the reaction products are easily soluble, the surface will be etched: if completely insoluble, a thin non-conducting film may be formed over the surface, the metal is passivated, and the reaction will cease. Electropolishing may occur when the reaction products are sparingly soluble in the solution, which is usually a mixture of viscous acids to which various additions may be made. In this case the dissolution products are only gradually diffused away from the anode under the influence of the electric current, and form, in effect, a film over the surface which offers resistance to the current, and thus controls the rate of dissolution in proportion to its thickness. On the rough dull surface, the presence of this film thus favours the dissolution

of the asperities, with the result that the surface gradually becomes smooth and bright.

Electropolishing solutions for stainless steel are usually of three types:—

a. A mixture of sulphuric acid and citric acid, e.g., sulphuric acid 20 per cent, citric acid 50 per cent, water 30 per cent. This solution is used at 170–210° F. at approximately 80–200 amps. per sq. ft. of metal, for 5–10 minutes. Various agents may be added to improve the polish, as well as to aid the precipitation of the metal as sulphates, which sink to the bottom of the tank.

b. A mixture of phosphoric acid and glycerin. This solution, to which approximately 10 per cent of water is added to increase the conductivity, gives excellent results when worked at 240° F. at 100–200 amps. per sq. ft.

c. An aqueous solution of phosphoric acid and sulphuric acid, e.g., phosphoric acid 60 per cent and sulphuric acid 20 per cent, the remainder being water. This solution, like the sulphuric/citric acid solution, may be operated at moderate temperatures of 170–180° F. for about 3 minutes.

For the polishing of stainless steel dentures, which are mounted with plastic, it will, of course, be necessary to adjust the operating temperature to the softening temperature of the plastic. For this purpose, the sulphuric/citric acid type of solution may be worked at a lower temperature if required, the current density being correspondingly reduced and the polishing time extended. Where plastics are used, which will not withstand the polishing acids, such parts may be masked with P.V.C. tape, or other stopping-off material.

Equipment and Operation.—The following operations are required to carry out electropolishing on a scale suitable for operation in a small workshop. The article is first degreased, either in an organic solvent such as trichlorethylene, or with soap or a detergent. It is then immersed in the electropolishing bath for 2–3 minutes, using a current density of about 2 amps. per sq. in., which requires about 12 volts. For a denture of 6 sq. in. surface area, the current used is therefore 12 amps.

The polishing solution is kept in a 2-litre glass beaker, which is immersed in a water bath, which may be heated either by gas or electricity. The temperature of the solution should be kept constant within $\pm$ 5° F. and a small thermostat is thus an advantage. Alternatively, if a large area of metal is to be polished at once, the solution, which is heated by the electric current, may require cooling.

Dr. H. E. Zentler Gordon lecturing on electropolishing of stainless steel.

In this case, cold water may be circulated through the water bath.

The solution is kept agitated slightly, either by using a glass stirrer operated by a small electric motor, or by driving air-bubbles through the solution.

The article which is to be polished may be fastened to a stainless steel jig, which is fitted with a spring clip holding the denture by its edge; and the jig, which is connected to the anode, is immersed in the solution. A small piece of lead is used as the cathode, and is connected to the current source, which may be a small rectifier or even a 12-volt car battery.

An ammeter and voltmeter are placed in circuit, as well as a rheostat, by means of which the current is adjusted to give a current density of 2 amps. per sq. in. After 2–3 minutes' electropolishing the denture is removed, washed in clean water, and dried.

Costs.—On the basis of a denture of 6 sq. in. surface area, 2 litres of solution (just under

½ gallon) will polish 1,250 dentures before the solution is exhausted, when it is renewed at a cost of 3s. 6d. for 2 litres. The solution cost per denture thus corresponds to 0·034d. The cost in electric power is very much less: 1 kw. can treat approximately 120 dentures, i.e., using mains supply with a rectifier, the cost is about 0·0045d. per denture.

It is estimated that a small outfit, as outlined above, would, in continuous operation, polish up to 1,000 dentures per week, while even this may be doubled or trebled by polishing more than one denture at a time, requiring an increase only in the current source employed. The latter is estimated from the surface area to be treated, i.e., 2 amps. per sq. in., allowing also for the area of the jig. The costs given above apply to a proprietary solution of the sulphuric/citric acid type used with an addition agent.

ACRYLIC TOOTH PRODUCTION

By **G. A. ROWLES**, L.I.B.S.T.

BEFORE commencing the description of this technique, perhaps it would be as well to mention that the method was designed during the period when acrylic teeth were in very short supply. However, although the shortage has now virtually disappeared, there still remain some advantages in the laboratory production of teeth which are worth considering. Firstly, the range of moulds and shades available is without limit: secondly, the resulting teeth are harder than those manufactured in metal moulds; thirdly, if the production is arranged to fill those inevitable slack periods in the laboratory, the cost per tooth will be negligible.

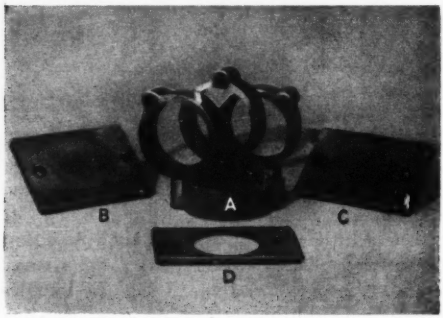


Fig. 1.—A, Interlocking flasks; B, C, Top and base plates; D, Mould former carrier.

The equipment required for this method is comparatively simple and consists of a series of interlocking flasks, together with brass plates 2 in. by 3 in. and ⅛ in. thick, one more in number than the flasks, and a flat piece of glass at least 2½ in. in diameter (the disk of glass from a cycle lamp is ideal) (*Fig.* 1).

The flasks themselves can best be described as 1-in. sections of $\frac{3}{16}$-in. thick brass tube, 2-in. outside diameter with lugs on either side which carry stainless steel dowels. These dowels are 1-in. lengths of stainless steel rod, ⅛ in. in diameter on one side of the flask, and $\frac{3}{16}$ in. on the other. Half their length is embedded in appropriate sized holes drilled right through the lugs of the flasks, and held in position by small pins driven horizontally through the dowel and lug. The remaining half of the hole in each lug is reamed out slightly to allow the dowels of the interlocking flask to slide in and out smoothly.

All the brass plates have two correct-sized holes drilled through them, so spaced that they can fit over the flask dowels. One is then ready to be used as a top to the assembled flasks. Another is fitted with dowels $\frac{5}{8}$ in. long and is used as a base. The remainder have a disk cut out, which, when the plate is in position on the flask lugs, corresponds to the inside diameter except for a small ridge which is left for retention purposes. These are then ready to carry the mould formers.

A range of sets of teeth is then selected and whether they are natural teeth, porcelain, or acrylic, it is first necessary to obtain two identical sets of teeth from the masters in acrylic.

On a piece of white card two concentric circles are drawn, one having a diameter corresponding to the inside diameter of the flasks and the other being $\frac{3}{8}$ in. smaller. Three lines are then drawn across the larger circle, all intersecting at the centre, thus forming six equally spaced "spokes" (*Fig.* 2, A).

All is now ready to commence making the mould formers. Taking one of the duplicated sets of teeth, grind away the lingual aspect of each tooth until exactly half the tooth remains; care must be exercised in this operation to ensure that each resulting ground surface is perfectly flat (*Fig.* 2, C). A small recess is then cut in the centre of these surfaces and subsequently filled with wax.

Place the glass disk over the markings on the cardboard, and arrange the six teeth on the glass (ground surface downwards) so that each tooth lies along a spoke, necks to the centre and tips bordering on the inner circle. Carefully lifting the glass disk, gently wave over a bunsen flame until the glass is warmed sufficiently to melt the sticky wax in the cavities of the teeth, so sealing them to the glass. Fill the centre with modelling wax to eliminate the undercut at the necks of the teeth, and inscribe in the wax the symbol to be given to the mould (*Fig.* 2, B, D).

Having replaced the glass in position on the card, take one of the flask sections and after smearing its under surface with "Vaseline", place on the glass so that its inside diameter coincides with the larger circle. Fill the flask section with a good quality stone plaster and, having fitted the top plate in position over the dowels of the flask, allow to set for at least one hour.

Remove the glass and teeth (the teeth will remain on the glass providing the grinding and sealing have been carried out correctly), leaving behind the first half of a mould.

Next place the flask, top plate downwards, on the bench, and after "soaping" the stone surface, fit the *second* set of the same mould in their appropriate places of the stone matrix so that the lingual aspect of the teeth stands proud, above the surface of the flask. Fit another section of the flask into position on the first and fill it with stone plaster, afterwards adding the baseplate and removing all excess plaster under a flask press, allow to set. Separate the flask sections and remove the teeth, leaving a perfectly formed mould, both surfaces of which are then coated with an alginate separating solution.

Place one of the mould former carriers in position on the dowels of the flask section carrying the lingual half of the mould, and, placing an excess of acrylic denture base

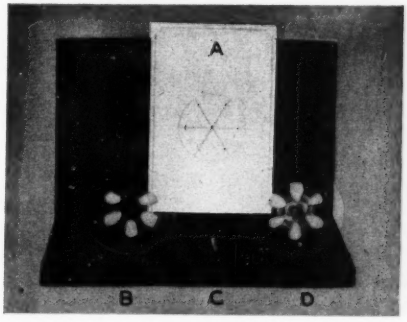


Fig. 2.—A, Card with markings to help in the arrangement of the teeth. B, Glass disk with five of the teeth in position. C, The remaining tooth, showing ground surface. D, Glass disk with teeth in position, centre filled in with modelling wax and the mould number inscribed.

dough to fill the tooth mould and the space cut from the carrier, fit the other section of flask on top. Exude all surplus acrylic by placing under a bench press. Clamp the flasks in a compress and cure the acrylic by the slow process.

Upon removal from the flask, the carrier, by virtue of its retention ridge, will be firmly holding the acrylic, which itself now forms a plate $\frac{1}{8}$ in. thick with the labial half of the six teeth extending on one side and the lingual half on the other.

A series of mould formers are now constructed in this way, one for each of the selected sets of teeth (*Fig.* 3, A). Care must of course be taken in storing these formers, for any damage to their surfaces will be apparent on the teeth produced.

To commence the production of teeth, a series of flask sections are placed in readiness, one more in number than the appropriate

mould formers that are selected. A quantity of stone plaster is mixed and a flask section, to which the base plate has been fitted, is filled. The lingual half of the first mould former is coated with stone (to eliminate the possibilities of air blows), and seated down in position on the dowels of the flask.

The second flask section is placed in position on the top and filled with stone, care being taken not to trap air on the labial surface of the first mould. The remaining mould formers are added in this way and placed under the bench press. Experience has shown that with a slow-setting stone, eight mould formers can be invested with one mix.

After allowing sufficient time for the stone plaster to set, the mould formers can be removed, leaving behind a series of moulds (*Fig.* 3, B, C). These are coated with an alginate solution and Dentine is then inserted between each flask (when mixing the Dentine allow 1 c.c. of monomer for each mould), and all excess acrylic removed under the bench press. The assembled flasks are then placed in a compress and cured (*Fig.* 3, D, E).

It will be found that as the plaster moulds obtained by this method are so accurate (i.e., the individual tooth moulds are parallel so that no undercut can exist) they will produce an average of eight sets of teeth each.

So far the technique has described the production of monochrome teeth. However, if a tip shade is required the teeth are made in the body shade first. When removed from their flash, part of the tip is ground away relative to the amount of incisal shade required. If a striation is also desired, the best method is to use two lathe grinding wheels held apart by a thin washer (*Fig.* 4). Using a guide similar to that shown in the photograph allow the tip to be cut away, which will leave a thin section of the body shade running down the centre of the tooth to the tip.

The teeth are then replaced in their mould, which has been repainted with alginate solution, and the tip shade added.

This method of tooth production was demonstrated during the 1951 S.I.M.A. Conference week-end.

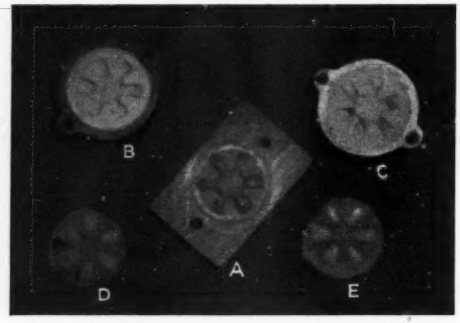


Fig. 3.—A, Labial surface of a mould former. B, C, Labial and lingual halves of a mould. D, E, Monochrome teeth with flask as removed from the mould.

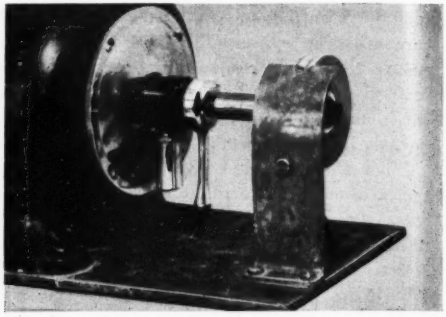


Fig. 4.—Showing the two spaced lathe wheels with guide in position.

CAN YOU BELIEVE IT?

From time to time, complaints are made about teeth and denture material crazing. On investigating a very severe complaint about acrylic teeth crazing, it was found that free monomer was being used to wipe over the teeth after setting up, in order to remove any trace of wax!

Moral: Keep all free monomer away from polymerized acrylic material, whether teeth or denture base.

NEWS FROM HEAD OFFICE

Wages Award.—Under the Award of the Industrial Disputes Tribunal, the following revised rates of pay operate as from the first full pay period following Nov. 16, 1951:—

		£	s.	d.
Dental Technicians:	Grade I	9	2	6
	Grade II	7	12	6
Apprentices:	1st year	1	10	0
	2nd year	1	16	0
	3rd year	2	5	0
	4th year	3	2	6
	5th year	3	17	6

Grading of Dental Technicians.—The observations of the Branches have been invited on the definition of Grades I and II, as it is felt that a revision of the N.J.C. grading is now appropriate.

The Dentists' Bill.—The Main Committee considered the views of the Branches at a meeting on Jan. 10, on the provisions in the Bill concerning the employment of ancillary workers, and after a full discussion it was decided to take steps to press for an amendment in the House of Lords either to eliminate the ancillary worker clauses from the Bill or alternatively to introduce into the Bill a clause which would give dental technicians some priority over the ancillary worker.

Laboratory Charges.—A further approach has been made to the Ministry of Health with a view to re-opening discussions on the subject of fixed laboratory charges.

Supplies of Plaster.—In view of the shortage of suitable plaster in some parts of the country, investigations have been made with regard to sources of supply and members experiencing difficulty are advised to communicate with head office who will furnish information on the subject.

Membership.—The following laboratories have been elected members of the Association:—

H. F. Barton, 126, Roxeth Green Avenue, South Harrow.

Baden Powell, 58, Warrington Road, Penketh, Warrington.

Our membership canvass continues under the direction of Mr. W. L. Thomas and we should be glad to receive the names and addresses of suitable laboratories who might be invited to join the Association.

Week-end Conference.—A successful Week-end Conference was held at the Holborn Restaurant on Feb. 8 and 9, commencing with the Annual Dinner and Dance on the Friday evening, and followed by the Annual General Meeting on the Saturday morning, and an Exhibition of Laboratory Equipment, Appliances, and Techniques after lunch. A report will be published in our next issue.

Change of Address.—The following member has removed to the new address given:—

The Dental Mechanics Guild, 46, Loman Street, Gt. Suffolk Street, S.E.1.

NEWS FROM THE BRANCHES

The Croydon Branch will hold the fifth annual spring meeting at Norbury Public Library Hall, on Friday, April 25, 1952, commencing promptly at 7.30 p.m.

Colonel A. H. Schmidt, of the United States Air Force, will fly from Wiesbaden, West Germany, to present his colour screen illustrated lecture "Partial Dentures". Colonel Schmidt lectures in a very lucid and charming manner and the subject of his lecture is most interesting and instructive. Admission is by ticket only, obtainable free from the Secretary, Mr. H. J. Nowers, F.I.B.S.T., 86, Croydon Road, Beddington, Croydon.

Provincial members will hardly need to be reminded that the Amateur F.A. Cup Final will be played on the following day at Wembley, an excellent opportunity to kill . . .

London Regional Branch.—Annual General Meeting. This meeting was held at 6, Holborn Viaduct, on Thursday, Jan. 10, 1952. In making his report the Chairman, Mr. E. G. Emmett, gave the meeting an outline of the year's activities and paid warm tribute to those members who had been prominent in arranging or investigating certain specific items, and to others for their welcome assistance.

Following acceptance of the Chairman's report, Mr. C. M. Booth gave a statement of the Branch accounts, and these having been approved, the meeting next dealt with the election of the Committee. The retiring committee was re-elected with the exception of Mr. Booth, who did not desire to stand this time. As a result of a vote taken later in the proceedings, Mr. H. F. Lucas was elected a member of the Main Committee.

A very lively discussion occupied the remainder of the time. The Chairman then announced the date of the next meeting, Thursday, March 6, 1952, and thanked those present for their attendance and support.

Liverpool Regional Branch Report.—The Annual General Meeting was held in January, when the following members were re-elected to the Committee:—

Mr. G. W. Ditchburn, L.I.B.S.T., *Chairman*; Mr. E. Flitcroft, *Secretary*; Mr. C. Ryan, *Treasurer*; Mr. N. Royston, and Mr. W. Gough.

West of Scotland Report.—The Annual General Meeting of the Branch was held on Jan. 14, 1952, at the Bath Hotel, Glasgow, when the following officials were appointed:—

Mr. R. R. Marshall, *Chairman*; Mr. T. S. Reid, *Vice-Chairman and London Rep.*; Mr. J. S. Fountain, F.I.B.S.T., *Secretary*; Mr. R. Candlin, *Treasurer*; Mr. J. Thomson, and Mr. R. Wilson.

The meeting was well attended and although it was pointed out that no less than twenty-two Laboratories had closed down in Glasgow alone, not one S.I.M.A. member had been forced to take this drastic step. The hope and belief was expressed on all sides that business was rounding the bottom curve and that indications are that it would slowly recover from now on.

South Western Dental Laboratories Association Report.—At the January meeting held at Newton Abbot, members were interested in further samples of castings in the new Chrome Cobalt Alloy. The hope was expressed at the meeting that several members would attend the S.I.M.A. Week-end Conference in February. The discussion at the meeting revolved around the new "Dentists' Bill" and also the problem of attracting new members.

One subject which will be discussed, and about which members' views are requested, is whether meetings should be held at Newton Abbot, Plymouth, and Exeter in rotation. The next meeting is planned for Plymouth on Tuesday, March 4, 1952, at 7 p.m. Will members please note the change of time. The venue is not yet decided, but members will receive notification from the Secretary, Mr. W. H. Horn, 10, Criterion Place, Exmouth. Non-members who are Laboratory owners will be most welcome.

S.I.M.A. (DENTAL LABORATORIES SECTION) DIARY

London Regional Branch (*Secretary*, Mr. R. Foale, F.I.B.S.T., 899, Finchley Road, N.W.11).—Meeting, March 6, 1952, at 6, Holborn Viaduct, E.C.1.

South Wales and Monmouthshire Branch (*Secretary*, Mr. R. Mather, F.I.B.S.T., 16, Clodien Avenue, Cardiff).—Meetings, March 6, April 3, 1952, at the Royal Hotel, Cardiff.

South-Western Dental Laboratories Association (*Secretary*, Mr. W. H. Horn, 10, Criterion Place, Exmouth, Devon).—Meeting, March 4, 1952, at Plymouth.

North-Eastern Branch (*Secretary*, Mr. R. H. Shaw, 100, Morley Street, Bradford).—Meeting, April 5, 1952, at the White Swan Hotel, Piccadilly, York.

Croydon Branch (*Secretary*, Mr. H. J. Nowers, F.I.B.S.T., 86, Croydon Road, Beddington, Croydon).—Meeting, April 25, 1952, at Norbury Public Library, 7.30 p.m.